

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Amendment of Part 90 of the)
Commission's Rules to Adopt)
Regulations for Automatic)
Vehicle Monitoring Systems)

PR Docket No. 93-61

To: The Commission

DOCKET FILE COPY ORIGINAL

PETITION FOR RECONSIDERATION

THE PART 15 COALITION

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SUMMARY

In the Report and Order in this proceeding, the Commission allocated the entire 902-928 MHz band for Location and Monitoring Service ("LMS") and established spectrum sharing rules to facilitate combined use of the band by LMS, Part 15 technologies, and others. Unfortunately, the rules adopted in the Report and Order will create intractable interference problems for LMS providers and existing users of the band. Therefore, the Coalition requests herein that the Commission reconsider its decision in several respects.

First, the Coalition urges the Commission to prohibit wideband forward links. Although no need for wideband forward links ever has been established, the Commission would authorize their use despite the fact that such links pose potential interference problems for Part 15 technologies. If, however, the Commission insists on permitting wideband forward links, at a minimum the restrictions on the use of wideband forward links also should include limits on antenna height and duty cycles.

Second, the "emergency use" and "store and forward" exceptions to the restriction on interconnection to the PSN should be eliminated. In order to provide efficient and effective emergency response capability, LMS systems need only employ one-touch emergency radio beacons. If, however, the Commission wishes to go beyond automated emergency messages and permit voice communications, those communications should be limited to connection with the LMS dispatch center for routing to the appropriate authorities. There is no need for interconnected, two-way voice communications.

Similarly, there is no need for the "store and forward" exception to the interconnection prohibition. There already is a variety of technologies available for

communicating voice messages to and from people in vehicles. Additional capacity should not be provided in the already overcrowded 902-928 MHz band.

Third, the Commission should modify Sections 90.361 and 90.363 to provide that Part 15 devices operating in accordance with the criteria in Section 90.361 are presumed conclusively *not* to cause harmful interference to grandfathered AVM systems, whether or not they are constructed as of February 3, 1995.

Fourth, the antenna height and power restrictions contained in Section 90.361 should be eliminated, because they would not achieve the goal of minimizing interference to LMS and only would stifle the use of valuable Part 15 technologies.

Fifth, in order to provide a check on the deployment of LMS systems that cause unacceptable levels of interference to Part 15 technologies, the field tests that are required under the rules must include procedures that will ensure that test parameters are reasonably uniform and that the testing covers a reliable sample of Part 15 technologies available in the marketplace. In addition, the Part 15 Coalition, which broadly represents the Part 15 industry, should be designated as the Part 15 entity to participate in the interference field tests of LMS systems.

Sixth, the Commission either must further restrict the permissible power of non-multilateration systems, or it must define more precisely what constitutes a non-multilateration system.

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In accordance with Section 1.429 of the Commission's rules, the Part 15 Coalition ("the Coalition") submits this petition for reconsideration of the Report and Order in the above-referenced proceeding.¹ The Coalition represents a group of companies that manufacture and market radio technologies designed to operate in the 902-928 MHz band under Part 15 of the Commission's rules.

In the Report and Order, the Commission allocated the entire 902-928 MHz band for Location and Monitoring Service ("LMS") (formerly Automatic Vehicle Monitoring) and established spectrum sharing rules to facilitate combined use of the band by LMS, Part 15 technologies, and others. Although the Commission's goal was to accommodate the various users of the 902-928 MHz band, the rules adopted in the Report and Order fall short of that goal and, instead, will create intractable interference problems for existing users of the band. Therefore, the Coalition respectfully requests that the Commission reconsider its decision in accordance with the comments set out below.

¹ Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, Report and Order, PR Docket No. 93-61 (rel. Feb. 6, 1995).

I. DISCUSSION

A. The Report And Order Reflects The Commission's Increasing Awareness Of The Value Of Part 15 Technologies.

In the Report and Order, the Commission recognized the "enormous benefits to both business and consumers" provided by Part 15 technologies, and outlined a spectrum sharing plan that was intended to ensure that Part 15 technologies continue to use the 902-928 MHz band, notwithstanding the allocation of the entire band for LMS.²

The Commission's sensitivity to the needs of Part 15 technologies bodes well for the future of unlicensed radio services. As the personal-access wireless age in communications unfolds, unlicensed technologies, whether operating under Part 15 or under future Commission rules for unlicensed radio devices,³ promise to play a critical role in the development of the Global Information Infrastructure. The Coalition is committed to working with the Commission to obtain and preserve the spectrum necessary for unlicensed technologies to fulfill that promise.

² Id. at ¶¶ 8, 34.

³ Numerous parties have, at various times, advocated the creation of a "Part 16" for unlicensed technologies. See, e.g., Letter from Larry Irving, NTIA, to Reed Hundt, FCC Chairman, ET- 94-32, 94-124, and PR- 93-61 (Dec. 12, 1994); Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, First Report and Order and Second Notice of Proposed Rulemaking, ¶ 58 (rel. Feb 17, 1995) (citing Comments of UTC); id. Comments of the Consumer Electronics Group of the Electronic Indus. Ass'n (filed Mar. 20, 1995) at 3. Unlike Part 15, Part 16 would provide interference protection for unlicensed technologies operating in the Part 16 band.

B. The Spectrum Sharing Scheme Outlined In The Report And Order Will Worsen Interference Problems Both For LMS Providers And Users Of Part 15 Devices.

In this proceeding, the Commission presented itself with the unenviable task of trying to accommodate five different services in the 902-928 MHz band: Part 15 technologies, ISM devices, amateur operations, government radiolocation systems, and now LMS providers. As several parties noted, the attempt was ill-fated from the start.⁴ The introduction of LMS into this band, in combination with the products and services already occupying the band, inevitably will lead to congestion and interference. This is of particular concern to the Coalition because, as Commissioner Quello noted, "interference to and from Part 15 devices and [LMS] systems is likely to be sporadic, unpredictable and, beyond a certain point, intractable."⁵

Nonetheless, the Commission has determined that these services are to coexist in the 902-928 MHz band. And, based on testing and analysis that one Commissioner referred to as "[no]thing more than fragmentary and inconclusive"⁶ and another dismissed because of "limitations and biases,"⁷ the Commission has adopted rules governing shared use of this spectrum by these services. Sadly, the rules in this case are likely to create, in Commissioner Quello's words, a "bog of interference problems."⁸

In the comments that follow, the Coalition offers specific suggestions for rule modifications that will help minimize interference to and from Part 15 devices and

⁴ See Report and Order, ¶ 21 & n.52 (collecting comments).

⁵ Id. (statement of Commissioner Quello).

⁶ Id. (statement of Commissioner Quello).

⁷ Id. (statement of Commissioner Barrett).

⁸ Id. (statement of Commissioner Quello).

LMS systems, particularly Multilateration LMS, or M-LMS systems, operating in the 902-928 MHz band. In addition, the Coalition urges the Commission to eliminate the antenna height restrictions and related power limitations in Section 90.361(c)(2)(A) & (B), which threaten to drive many valuable Part 15 technologies from the market.

1. **M-LMS Wideband Forward Links Should Be Prohibited Or Not Deployed Unless Operational Restrictions Are Imposed And Demonstrated Evidence Of No Unacceptable Interference Is Verified.**

Throughout this proceeding, the Coalition and many others have pointed out that M-LMS wideband forward links pose a real and significant threat to many valuable Part 15 technologies.⁹ As the Consumer Electronics Group of the EIA noted, "for consumer products such as cordless phones, prohibition of the wideband forward links is a key point of the action being considered."¹⁰ Despite the widespread opposition to wideband forward links and the fact that no need for wideband forward links ever has been established, the rules adopted in the Report and Order allow for their use by M-LMS systems. This aspect of the Report and Order should be reconsidered.

In the Report and Order, the Commission attempted to respond to the concerns raised regarding wideband forward links by limiting wideband forward

⁹ See, e.g., Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, Notice of Proposed Rulemaking, 8 FCC Rcd 2502 (1993) (Further Comments of Itron (Aug. 12, 1994); Comments of Symbol Technologies (Aug. 12, 1994)). The concept of forward links, and especially wideband forward links, is limited to the M-LMS technologies, and discussed in the Report and Order only under the section entitled "Multilateration System Operations." Although there is no corresponding section on Nonmultilateration System Operations, the types of activities that the Report and Order contemplates for N-LMS would not include a wideband forward link (see, e.g., ¶ 14).

¹⁰ Letter from Gary J. Shapiro, Group Vice President, CEG/EIA, to the Hon. Reed E. Hundt, Chairman, FCC (Dec. 15, 1994).

links to 30 watts effective radiated power and confining them to a maximum of 8.0 MHz of spectrum.¹¹ These restrictions, however, are inadequate to prevent substantial interference to Part 15 technologies. In apparent recognition of this shortcoming, the rules adopted in the Report and Order provide that multilateration LMS systems may not employ wideband forward links until the licensee can "demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to Part 15 devices."¹² Unfortunately, the Commission does not explain what level of interference to Part 15 devices is "acceptable."¹³ The interference problems that will be engendered by wideband forward links should not be subject only to such a vague and subjective standard. Because wideband forward links pose such a substantial threat to the continued use of the 902-928 MHz band by Part 15 technologies, the Coalition urges the Commission, on reconsideration, to prohibit the use of wideband forward links entirely.

To begin with, a persuasive case never has been made that such links are necessary or desirable. Indeed, the need for wideband forward links is contradicted by the fact that there are successful systems in operation using forward links limited to 250 kHz. Moreover, the two proponents of wideband forward links never satisfactorily have identified any unique or superior value of their spectrum-hungry systems.

The failure to establish a need for wideband forward links should be contrasted with the potentially insurmountable interference problems for Part 15

¹¹ 47 C.F.R. §§ 90.205(b), 90.209(b)(10), 90.357(a). M-LMS licensees will be able to employ 8.0 MHz wideband forward links if the 919.75-921.75 MHz and the 921.75-927.25 MHz bands, plus the two associated narrowband subbands, are aggregated.

¹² Id. ¶¶ 76, 82.

¹³ See also Section B.5 *infra*.

technologies that wideband forward links present. If the Commission were allocating virgin spectrum for M-LMS services, it perhaps would be worthwhile to permit manufacturers to experiment with wideband forward links. In this case, however, the 902-928 MHz spectrum already is heavily used and there is no room for new systems that do not make efficient use of the spectrum themselves or do not share spectrum efficiently with other users.

Under the rules adopted in the Report and Order, M-LMS systems will be permitted to employ wideband forward links that occupy up to 8.0 MHz of spectrum in a band comprised of only 26 MHz. Thus, multilateration systems employing such links may, at any given time, occupy a substantial percentage of the available frequencies in this band on which spread spectrum devices may communicate. As a result, it is likely that the operation of wideband forward links will blanket and overpower all nearby Part 15 devices. If the 902-928 MHz band is to remain a stable and usable environment for Part 15 technologies, M-LMS wideband forward links should not be permitted in this band.

If, however, the Commission insists on permitting wideband forward links, at a minimum the restrictions on the use of wideband forward links also should include limits on antenna height and duty cycles, and, as described more fully in part B.5 *supra*, should be conditioned upon objective demonstration that they do not create unacceptable interference to various configurations of Part 15 devices.

As the Commission has recognized, reduced LMS antenna height helps such licensed systems to "share spectrum more easily...with users of Part 15 devices."¹⁴ For this and other reasons, the Commission imposed a fifteen meter antenna height

¹⁴ Id. ¶ 93; see also Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, PR Docket No. 93-61, Erratum, ¶ 4 (rel. Feb. 17, 1995).

limitation on non-multilateration systems. Imposing the same limitation on the wideband forward links of multilateration systems, if they are to be permitted, would eliminate needless regulatory distinctions between the two types of licensed systems. Additionally, a duty cycle should be imposed that permits only such frequency of transmission and duration as is actually needed to interrogate the units being located.

2. The "Store And Forward" And "Emergency" Use Exceptions To The Prohibition On LMS Interconnection With The Public Switched Network Should Be Eliminated.

Under the rules adopted in the Report and Order, LMS systems generally are prohibited from interconnecting with the public switched network ("PSN"). The Commission has made it clear that LMS systems are not to be used for general messaging purposes, but only for status and instructional messages associated with the location or monitoring of the vehicle or unit.¹⁵ Nonetheless, the rules provide for two exceptions to the PSN prohibition: (1) real-time interconnection with the PSN will be permitted for "emergency communications related to a vehicle or a passenger in a vehicle.... to or from entities eligible in the Public Safety and Special Emergency Radio Services or a system dispatch point"; and (2) messages to or from the PSN may be stored by the LMS provider and later forwarded to their destination.¹⁶ These exceptions are unjustified and unnecessary.

To the extent that LMS systems become a source of voice traffic, interference to unlicensed technologies will increase. Standard LMS reverse link traffic typically poses minimal risk to Part 15 technologies, in part because the transmissions tend to involve short, bursty data traffic. Voice traffic, on the other hand, including

¹⁵ Id. ¶ 26.

¹⁶ Id. ¶ 27.

nonreal-time voice mail messaging, requires longer transmissions, and, thus, creates more interference and spectrum congestion. The Commission acknowledged this when it assumed that "these transmissions should only occur sporadically or in the event of emergency."¹⁷ The "emergency use" and "store and forward" exceptions to the PSN interconnection restriction however are far too broad and provide a means for users of LMS systems, notwithstanding the benign intentions of LMS operators, to circumvent the general prohibition.

a. Emergency Communications

First, although the Coalition agrees that LMS systems should provide emergency communications capability, it is not clear that this capability requires the use of voice communications or, if emergency communications are to include voice transmissions, that the systems must interconnect with the PSN. In other radio services, such as maritime and aeronautical, vehicles carry emergency radio beacons that may be activated in an emergency to alert authorities and provide the location of the vehicle/person in distress. No voice communications are necessary.¹⁸ Indeed, LMS systems were originally envisioned to include just such emergency beacon capability. For instance, in its original petition for rulemaking in this proceeding, North American Teletrac ("Teletrac") described an emergency function for its system whereby "the vehicle occupant will be able to use the panic button

¹⁷ Id. ¶ 79.

¹⁸ See Marshall Schuon, What's Ahead on the Electronic Highway, NY Times, Apr. 23, 1995, at 37A (describing Lincoln-Mercury's "RESCU" system, which will allow a motorist in distress to summon help by activating an emergency response signal by pushing one of two buttons that will transmit to a dispatch center the type of assistance needed and the vehicle's location).

feature to inform Teletrac's [dispatch center] of the car's location for quick and efficient emergency response."¹⁹

A slightly more sophisticated variation of the emergency beacon system might include a keypad with different "panic buttons" for different types of emergencies. Such systems are found in some home security systems, which allow the occupant of the house to summon police, fire, or ambulance service with the touch of a button.²⁰ Again, no voice communications are necessary. Moreover, in an emergency situation, no voice communication should be necessary since the vehicle occupant may be incapacitated. If LMS systems are to provide similarly swift, efficient, and fool-proof emergency response capability, they too should employ one touch emergency radio beacons, without the burden of required voice communications.

In any event, if the Commission adheres to its decision to permit emergency voice communications, there is no reason those communications must interconnect to the PSN. The best emergency communications systems are those that are easiest to operate under stress. For example, the 9-1-1 emergency telephone system has been remarkably successful because callers need not remember or find the telephone number for the nearest police station, fire house, or hospital, but merely dial three digits to be connected with someone who can determine the nature of the emergency and ensure that the appropriate assistance is provided.

¹⁹ Amendment of Section 90.239 of the Commission's Rules to Adopt Permanent Regulations for Automatic Vehicle Monitoring Systems, Petition for Rulemaking of Teletrac (filed May 28, 1992) at 12.

²⁰ See Schuon, note 18, *supra* (Lincoln-Mercury's RESCU system will allow a motorist to send for help by pushing one of two buttons in the vehicle, one marked with a tow-truck icon and the other with an ambulance).

Thus, for safety reasons, if no other, emergency voice communications, to the extent that they are allowed in this service, should be limited to connection with the LMS dispatch center for routing to 9-1-1 or other emergency response systems. As in the case of an emergency beacon, such connection could be provided to the LMS user at the touch of a single button. This would facilitate rapid emergency response and, by eliminating the need for full telephone keypad in the vehicle, it would ensure that the voice communications capability of the system was not being misused as a general messaging system.

Finally, and in the alternative, if the Commission decides to permit emergency voice communications and it continues to except such communications from the interconnection prohibition, the Commission should, at minimum, provide a comprehensive definition of what constitutes an "emergency communication" and clarify that LMS providers, in addition to LMS users, are responsible for compliance with this limitation.²¹ Although the Report and Order provides two examples of emergencies — immediate medical emergencies and vehicle mechanical failures²² — it does not limit emergency communications to these two situations, nor does it provide an analytical framework with which to evaluate other types of putative emergency communications. Without more specific limits, this exception could make the interconnection prohibition meaningless. LMS users, with a telephone keypad in reach, will be tempted to use the service as a substitute mobile radio service, whether or not they are instructed that it is only to be used to contact Public Safety eligibles.

²¹ Although Paragraph 23 of the Report and Order implies that LMS providers will be responsible for compliance with the limitations on messaging communications by imposing a record keeping and disclosure requirement, that facet of the new rules should be clarified.

²² Report and Order at n.61.

b. "Store and Forward"

For the same reason, the "store and forward" exception also promises to undermine the interconnection prohibition. And, as in the case of interconnected voice emergency communications, there is no need for the exception. LMS will be one element of a complex and varied "collection of advanced radio technologies" that will comprise the Intelligent Vehicle Highway System ("IVHS") of the future.²³ However, as the Commission has noted, "[n]ot all of these services...require or rely on the use of the 902-928 MHz band."²⁴ Indeed, the 902-928 MHz band cannot support the many services that have been proposed for the IVHS.²⁵ There is already a wealth of technologies available for communicating voice messages to and from people in vehicles, and with the dawn of the PCS age, this capacity will increase dramatically. To the extent that additional messaging services are necessary or desirable, the IVHS will provide numerous ways to satisfy those needs and desires. Such additional capacity should not be provided in the already overcrowded 902-928 MHz band using LMS. Thus, there is simply no justification for the "store and forward" exception to the interconnection prohibition.

Nonetheless, and in the alternative, if the Commission retains the "store and forward" exception, the exception must be more narrowly confined to ensure that it is used only for ancillary communications necessary for the "Intelligent Transportation System," as the Department of Transportation and IVHS America suggested.²⁶ For example, the Commission should make clear that a "delay" of milliseconds does not constitute "storage" of a voice message. To the average user,

²³ *Id.* ¶ 5.

²⁴ *Id.*

²⁵ *See id.* n.59.

²⁶ *Id.* ¶ 21.

such short delays in transmission would be hardly noticeable and the system would quickly become another mobile radio service. At minimum the Commission should require enough of a delay that two-way, person-to-person conversation over the system would be impossible (*e.g.*, one minute).

3. The Commission Should Provide That Part 15 Technologies Operating In Accordance With The Noninterference Standards Of Section 90.361 Will Be Presumed Conclusively Not To Interfere With Grandfathered AVM Licensees.

Under the rules adopted in the Report and Order, Part 15 devices that operate in compliance with the criteria set forth in new Section 90.361 are presumed conclusively not to cause harmful interference "to a multilateration system operating in one of the three MTA sub-bands."²⁷ The rules, however, also provide that AVM systems licensed on or before February 3, 1995, may continue to operate under the current rules if they modify their licenses to comply with the newly adopted "band plan."²⁸ These "grandfathered" systems were not licensed on the basis of MTAs and nothing in the newly adopted rules appears to bring them within the scope of the safe harbor rules of Section 90.361.

On reconsideration, the Commission should modify Sections 90.361 and 90.363 to provide that Part 15 devices operating in accordance with the criteria in Section 90.361 are presumed conclusively *not* to cause harmful interference to AVM systems grandfathered under Section 90.363, whether constructed as of February 3, 1995, or not. The presumption of noninterference was intended to provide users of Part 15 technologies a safe harbor within which to operate. No rationale has been

²⁷ 47 C.F.R. § 90.361.

²⁸ 47 C.F.R. § 90.363. This requirement is in tension with the text of the Report and Order, which confers grandfathered status on licensed, but not yet constructed systems, so that they may operate "under [the Commission's] newly adopted rules." Report and Order ¶ 61.

offered that justifies excluding grandfathered AVM systems from the safe harbor provisions. Indeed, the most immediate need for the safe harbor is to provide Part 15 technologies protection against claims of interference from already existing AVM licensees, as rapid build-out can be expected by operators attempting to satisfy the new construction requirements. Without such protection, the survival of Part 15 technologies in the band will be threatened.

4. The Antenna Height And Power Restrictions Contained In Section 90.361 Should Be Eliminated.

Section 90.361 establishes parameters within which Part 15 devices must operate in order to be entitled to a presumption of noninterference to LMS systems. Subparagraph C of Section 90.361 provides that a Part 15 device with an outdoor antenna will be presumed to be noninterfering if: the directional gain of the antenna does not exceed 6 dBi (or transmitter output power is reduced below 1 watt by the amount by which the directional gain exceeds 6 dBi); and either the antenna is 5 meters or less above ground, or the antenna is 5 to 15 meters above ground and transmitter output power is further reduced.²⁹ This “negative definition” of harmful interference does not provide effective protection against interference to LMS nor does it enable unambiguous identification of an interfering emitter.

Ironically, although new Section 90.361 effectively will stifle the development of valuable Part 15 technologies, it will, in the end, not provide effective protection against possible interference to LMS because “above ground” antenna height restrictions fail to account for differences in terrain. All other factors held constant, any antenna operating five meters above ground on a mountain top 1,000 feet above average terrain could well cause more interference to other devices than an antenna fifty feet above ground at average terrain. But, as a practical, matter a more

²⁹ Id. ¶ 36.

meaningful height above average terrain measurement would be impossible to achieve in this situation. As one party noted in response to proposed antenna height limitations for Part 15 devices, "the meaningless outdoor antenna height above ground threshold could have a devastating impact on a significant portion of the Part 15 industry for no discernible reason."³⁰

Despite the fact that the height restriction will not effectively reduce the risk of interference to LMS, new Section 90.361 will lead to arbitrary administration of the rules established in this proceeding and deny consumers the benefits of an entire category of valuable Part 15 technologies (those that require rooftop antennas). For example, wide area data network applications, which have the potential of providing Internet connectivity and other solutions to many of our country's educational networking needs, depend upon rooftop antennas for efficient data transmission. Although the Commission's new rules do not explicitly prohibit the use of such technologies, their exclusion from the safe harbor provisions of Section 90.361 damages any investment in providing these sought-after technologies and will discourage their future development and deployment.

In addition, the Commission can expect recurring claims of interference from LMS operators. When such claims are made, any Part 15 device operating above the negatively defined threshold will be at risk of being shut down whether or not it is the source of the interfering signal. Assuming there is interference to LMS services, it could be caused by any of thousands of potentially interfering signals present in the area. Although the text of the Report and Order provides that a complaint to the Commission about interference "must identify the exact source of the interference,"³¹ the rules published in Appendix A contain no such requirement.

³⁰ Ex Parte Comments of Metricom at 7 (filed Aug. 12, 1994).

³¹ Report and Order at ¶ 38.

At the very least, on reconsideration, the rules should be amended to clarify that LMS providers must identify a specific source of interference in any interference complaint they may file with the Commission. This will facilitate cooperative resolution of interference problems and reduce the risk of arbitrary removal of Part 15 technologies from the 902-28 MHz band.

5. Specific Procedures For Testing M-LMS Systems Should Be Established.

As the Commission recognized, "certain aspects and elements" of Part 15 technologies and M-LMS systems "create a greater potential for interference than others."³² Therefore, to ensure the successful coexistence of M-LMS and Part 15 technologies in the 902-928 MHz band, the Commission "condition[ed] grant of each MTA multilateration license on the licensee's ability to demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to Part 15 devices."³³ Unfortunately, aside from noting its "expectation that such testing [will] be accomplished through close cooperation between multilateration systems users and operators of Part 15 systems,"³⁴ the Commission has failed to establish any procedures that will govern the required testing.

The omission of testing procedures undercuts any substantive interference standard set out in the rules. In order to provide a check on the deployment of M-LMS systems that cause unacceptable levels of interference to Part 15 technologies, the field test requirement must include procedures that will ensure that test parameters are reasonably uniform and that the testing covers a reliable sample of the Part 15 technologies available in the area. For instance, the rules should make

³² Id. ¶ 81.

³³ Id. ¶ 82.

³⁴ Id.

clear that each M-LMS licensee is responsible for testing its system against Part 15 technologies that are representative of those that are prevalent in the area in which the M-LMS system will operate. Similarly, the manufacturers of the Part 15 technologies that are used in the area should be notified of the test so that they can participate and independently monitor interference results. Finally, M-LMS licensees should be required to file with the Commission a description of their interference tests, which should include a list of the Part 15 technologies against which the systems were tested.

Moreover, given the diversity of Part 15 technologies, and the fact that Part 15 operations may be widely dispersed in any geographic region, M-LMS providers may find it problematic to identify and notify the relevant Part 15 operators. Accordingly, the Part 15 Coalition, which broadly represents the Part 15 industry, is willing to act as a clearinghouse for the M-LMS licensees who must conduct the interference tests and should be designated as such in the rules that the Commission adopts on reconsideration. This will assure that the M-LMS field tests will be meaningful and that they will be conducted in the atmosphere of close cooperation envisioned by the Commission.

**6. The Definition Of Non-Multilateration Systems
Must Be More Precise.**

In the Report and Order, the Commission describes non-multilateration systems as those using "narrowband technology to transmit data to and from vehicles passing through a particular location."³⁵ Apparently, the Commission envisions non-multilateration technologies as fulfilling the kind of "tag-reader" functions that so-called "narrowband AVM" systems have thus far fulfilled:

³⁵ Report and Order ¶ 4.

automated toll collection and railroad monitoring.³⁶ Part 15 technologies should be able to coexist with such "tag-reader" non-multilateration systems because tag-readers typically entail low power operation and because they generally operate in fixed positions in the immediate vicinity of highway toll plazas, rail sidings, and other rights-of way.³⁷ Unfortunately, the definition of non-multilateration systems found in the rules adopted in the Report and Order does not limit non-multilateration LMS systems, either functionally or technically, to tag-reader technologies.

This poses particular problems because non-multilateration systems are slated to use the 909.750-921.750 MHz frequencies, which the Commission recognizes is the portion of the 902-928 MHz band most heavily used by Part 15 technologies, and which the Commission has set aside as a safe harbor from interference generated by multilateration systems.³⁸ Because non-multilateration cannot share frequencies with multilateration systems,³⁹ it is particularly important that both Part 15 technologies and non-multilateration systems be technically compatible in the center of the 902-928 MHz band. The Commission's rules, however, do not assure the requisite degree of compatibility.

In the rules, the Commission defines non-multilateration systems as those that "employ any of a number of non-multilateration technologies to transmit information to and/or from vehicular units."⁴⁰ This definition encompasses virtually any vehicular communications technology, including cellular and PCS services. Moreover, whereas true tag-reader technologies require only one, or at

³⁶ See *id.*

³⁷ See Comments of Amtech Corp., PR Docket No. 93-61 (June 29, 1993) at 17.

³⁸ See Report and Order ¶¶ 24, 39.

³⁹ See *Id.* ¶ 46.

⁴⁰ 47 C.F.R. § 90.7.

most a few, watt[s] of power, the Commission has provided that non-multilateration systems may employ up to 30 watts of power.⁴¹ Although such high-power operations might not pose a significant threat of interference to Part 15 technologies if they were confined to highway toll plazas and railroad sidings, as proposed by several parties,⁴² high-power non-multilateration systems that have no geographic limits will overwhelm all Part 15 operations in their vicinity.

As the rules currently are framed, a "non-multilateration" LMS provider could transmit a continuous signal, at 30 watts of power, over 12 MHz of bandwidth in the center of the 902-928 MHz band throughout a metropolitan area. Transmissions of this nature would blanket nearby Part 15 devices with a powerful interfering signal in the very part of the band that is supposed to be a safe harbor from incompatible multilateration systems. In addition, since non-multilateration systems will be unlicensed and "unauctionable," the Commission has left open a loophole that may undermine its efforts to auction spectrum for services like multilateration LMS and PCS.

Therefore, on reconsideration, the Commission either should reduce the applicable power limitation for non-multilateration LMS systems to one watt (as Part 15 devices are) or it should require that all such systems be operated within fifty meters of a highway toll plaza or rail siding. Only by so limiting non-multilateration systems can the Commission ensure that such systems do not become a substitute for LMS or other licensed services and, thereby, undermine the intent of the Commission's rules.

⁴¹ See Report and Order ¶ 93.

⁴² See, e.g., Comments of Itron, PR Docket No. 93-61 (filed Aug. 12, 1994) at 2.

II. CONCLUSION

For the reasons set forth herein, the Coalition urges the Commission to reconsider its Report and Order in this proceeding, and to modify its spectrum sharing plan for the 902-928 MHz band in accordance with the suggestions outlined above.

Respectfully submitted,

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